

foam glass tile
density
weight
building
earthquake

What is claimed is:

closed cell/pore

Sub
a17

1. A foam glass tile comprising a closed pore outer skin on at least one side, having a density between 30 lb./cu. ft. and 100 lb./cu. ft., and having a weight greater than 30 lb.

2. The foam glass tile according to claim 1, wherein the tile surface area is at least 2 feet by 2 feet.

3. The foam glass tile according to claim 1, wherein the tile surface area at least 4 feet by 4 feet.

4. The foam glass tile according to claim 1, wherein the tile has a density greater than 40 lb./cu. ft.

5. The foam glass tile according to claim 1, wherein the tile has a density greater than 50 lb./cu. ft.

6. The foam glass tile according to claim 1, wherein the tile has a thickness of at least 3 inches.

7. The foam glass tile according to claim 1, wherein the tile has a thickness of at least 4 inches.

8. The foam glass tile according to claim 1, wherein the tile has a weight of at least 65 lbs.

9. The foam glass tile according to claim 1, wherein the tile has a weight of at least than 100 lbs.

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10. The foam glass tile according to claim 1, wherein the tile is assembled with at least one other tile of like construction to form a panel, said panel is used as a lightweight building facade.

11. The foam glass tile according to claim 10, wherein said building facade is assembled into at least a portion of a building so that said portion of said building will be substantially resistant to earthquake damage.

12. The foam glass tile according to claim 1, wherein said tile has a closed pore structure.

13. The foam glass tile according to claim 12, wherein said outer skin is a glazed outer surface of said foam glass tile.

14. The foam glass tile according to claim 12, wherein said closed pore structure is textured for architectural appeal.

15. The foam glass tile according to claim 12, wherein the tile further comprises an interior portion and said tile outer skin comprises an additive to make its surface appear a different color than said interior portion of said tile.

16. A composite building material comprising:

(a) a foam glass tile having a density between 20 lb./cu. ft. and 100 lb./cu. ft.; and

(b) a rigid structure,

whereby said tile is backed by said rigid structure so that if subjected to blast shock waves having blast energy, said tile can absorb a substantial portion of said blast energy to which said tile is exposed.

17. The composite building material according to claim 16, wherein said rigid structure is a building column.

18. The composite building material according to claim 16, wherein said rigid structure is located in or adjacent to a garage.

19. The composite building material according to claim 16, wherein said rigid structure comprised of one or more cementaceous materials.

20. The composite building material according to claim 19, wherein said cementaceous materials comprise portland cement.

21. The composite building material according to claim 19, wherein said cementaceous materials comprise lime.

22. The composite building material according to claim 19, wherein said cementaceous materials comprise an aluminous cement.

23. The composite building material according to claim 19, wherein said cementaceous materials comprise plaster.

24. The composite building material according to claim 16, wherein said rigid structure comprises polymeric materials.

25. The composite building material according to claim 24, wherein said polymeric material is comprised of fibrous materials and/or Kevlar.

26. A ceramic-glass foam composite comprising:

(a) a foam glass tile; and

(b) an inorganic cementaceous backing on said foam glass tile,

whereby said composite is capable of absorbing a substantial portion of blast energy which it may be exposed to from a potential explosion.

27. The ceramic-glass foam composite according to claim 26, wherein said foam glass tile is exposed in the direction of said potential explosion.

28. The ceramic-glass foam composite according to claim 26, wherein said cementaceous backing forms a pozzolanic bond with said foam glass tile.

29. The ceramic-glass foam composite according to claim 26, wherein said cementaceous backing is reinforced cement.

30. The ceramic-glass foam composite according to claim 26, wherein said composite is mounted on a building column.

31. The ceramic-glass foam composite according to claim 26, wherein said composite is mounted on a wall located in or adjacent to a garage.

32. A foam glass composite panel comprising:

(a) a surface finish layer;

(b) at least one layer of rigid foam glass; and

(c) at least one backing layer.

33. The foam glass composite panel according to claim 32, wherein said rigid foam glass has closed pore structure.

34. The foam glass composite panel according to claim 32, wherein said surface finish layer is a foam glass glazed outer surface of said at least one layer of rigid foam glass.

35. The foam glass composite panel according to claim 32, wherein said surface finish layer is textured for architectural appeal.

36. The foam glass composite panel according to claim 32, wherein said surface finish layer includes an additive to make its surface appear a different color than said at least one layer of rigid foam glass.

37. The foam glass composite panel according to claim 32, wherein said surface finish layer contains fibrous materials.

38. The foam glass composite panel according to claim 37, wherein said fibers are made from graphite and/or Kevlar.

39. The foam glass composite panel according to claim 32, wherein said at least one backing layer contains fibrous materials.

40. The foam glass composite panel according to claim 39, wherein said fibers are made from graphite and/or Kevlar.

41. The foam glass composite panel according to claim 32, wherein said surface finish layer comprises a polymeric material.

42. The foam glass composite panel according to claim 32, wherein said at least one backing layer comprises a polymeric material.

43. The foam glass composite panel according to claim 32, wherein said at least one backing layer comprises one or more cementaceous materials.

44. The foam glass composite panel according to claim 43, wherein said cementaceous materials form a pozzolanic bond with a surface of said at least one foam glass layer.

45. The foam glass composite panel according to claim 43, wherein said cementaceous materials comprise portland cement.

46. The foam glass composite panel according to claim 43, wherein said cementaceous materials comprise reinforced portland cement.

47. The foam glass composite panel according to claim 43, wherein said cementaceous materials comprise lime.

48. The foam glass composite panel according to claim 43, wherein said cementaceous materials comprise an aluminous cement.

49. The foam glass composite panel according to claim 43, wherein said cementaceous materials comprise plaster.

50. The foam glass composite panel according to claim 43, wherein a layer of a bonding promoter or adhesive is applied between said at least one foam glass layer and said backing layer.

51. The foam glass composite panel according to claim 32, wherein said at least one backing layer comprises metal.

52. The foam glass composite panel according to claim 32, wherein hanging hardware is installed in the backing layer.

53. The foam glass composite panel according to claim 32, wherein said panel is mounted on a load-bearing frame.

54. The foam glass composite panel according to claim 53, wherein said panel is capable of absorbing a substantial amount of shock waves and vibration energy.

55. The foam glass composite panel according to claim 32, wherein said surface finish layer is capable of containing fragments of said one or more glass foam layers in the case of a shock wave.

56. The foam glass composite panel according to claim 32, wherein said one or more backing layer is capable of containing fragments of said one or more foam layers in the case of a shock wave.

57. The foam glass composite panel according to claim 32, wherein said panel is assembled into at least a portion of a building so that said portion of said building will be substantially resistant to earthquake damage.